

High-tech Watercraft Keep Waters Flowing

With names like “Tiger Cut,” “Aqua-Mog,” “Robo-Boat,” and “Kelpin 800,” these are not the kind of boats one would normally see on lakes and rivers. Specialized watercraft make up a small armada of boats needed to efficiently maintain approximately 1,800 miles of canals and levees within the 16-county area of the South Florida Water Management District.



The “Tiger Cut” pictured above, works in tandem with the “Kelpin 800” below, to manage vegetation in an STA.

Far out in western Palm Beach County are six man-made wetlands called stormwater treatment areas (STAs). Simply put, they are designed to filter phosphorus in the runoff from surrounding farm fields, cleansing water before it enters the Everglades. When an STA becomes too thick with plants to operate efficiently, a “cutter boat” clears the way by harvesting the unwanted vegetation. This boat gets its name from the way it cuts through the vegetation – reducing large clumps of tangled plants to smaller bits of vegetation that can be harvested and made ready for disposal.

One of these cutter boats is called the “Tiger Cut.” At 18 feet long and six feet wide, it nimbly moves through the shallow waters of an STA. Four-foot wide whirling blades in the front cut and propel the small boat through a thick surface mat of vegetation – primarily cattails.

Close by, a large mechanical harvester, known as the “Kelpin 800,” does a similar job of cutting – but it also has the ability to “pick up after itself.” Following in the wake of the “Tiger Cut,” it collects the cut vegetation left by both watercraft. An on-board conveyor belt rakes and compacts the debris until the boat is full. That material is then off loaded at a spoil collection area, where it is put on trucks and taken away.

“Aqua-Mogs” are small, self-propelled barges that can be used for dredging, shoveling, shoreline mowing, cutting and other maintenance operations. After Hurricane Andrew hit in 1992, “Aqua-Mogs”

were put into service to help re-open inaccessible waterways clogged by fallen trees and other debris.

Towboats are also used to collect debris. Designed after the WWII-era “duck boat,” they ride low in the water, making them ideal for maneuvering under the many low bridges that span District canals in Miami-Dade and Broward counties. Their front-operated baskets collect debris from urban canals so it can be deposited on canal banks and trucked away.

Another trail-blazing boat is working to clear the Miami River of litter and pollutants, the “Scavenger 2000.” This specially designed 38-foot boat is one of a kind, the creation of Water Management Technologies, a local company, and leased to the City of Miami. In two months of plying the river, the boat has removed 2,000 cubic feet of trash. But the Scavenger is also capable of improving water quality by reducing bacteria, oil, algae and other contaminants; and pumping life-supporting oxygen back into the water. The “Scavenger 2000” is part of a demonstration project by the Miami River Commission, with funding by state and local governments, including the District.

Finally, though tiny in comparison to the other specialty boats, the “Robo-Boat” does a very big job. This radio-controlled device, developed by the District, was judged to be so unique that the District became the first water management agency in the nation to receive a patent from the U.S. Patent Office. Its small size and remote operation dramatically changed and improved current methods of water monitoring and data collection. Now, water samples can be gathered by “Robo-Boat” from areas that were not previously accessible to larger boats. It can also check for structural damage deep inside culverts, and staff need not be concerned about encountering unfriendly alligators while trying to gather this important water quality information.

So, whether radio controlled, or operated in a more familiar manner, each of these highly effective and innovative watercraft help the District manage and monitor the waters flowing through the vast network of waterways and structures built to help control flooding and safeguard the water resources of South Florida.



The “Aqua-Mog” is capable of maintaining or clearing vegetation from steep or shallow canal banks. It was used extensively after Hurricane Andrew.



The Towboat with its low profile easily maneuvers under low bridges spanning District canals, collecting debris along the way.



“Robo-Boat” is small and very maneuverable. Though it may look like a toy, it’s an invaluable tool for scientists.



The “Scavenger 2000” readies for a journey on the Miami River.

